

**Supplemental Table S8.** List of public RNA-seq libraries. The listed RNA-seq libraries have been used in the study to assign expression levels to CRS regions and gene regulatory regions. For the first two datasets hg38 and mm10 premapped BAM files were downloaded from the indicated URLs: ENCODE phase 3 was mapped with STAR 2.5.1b; Illumina Human Body Map 2.0 (E-MTAB-513) was mapped with BWA v0.6.2-r126-tpx. For the third dataset (SRX081) we downloaded raw reads (.fastq files) and their processing is described in the Methods. Using the ENCODE phase 3 total RNA for human-mouse comparison we matched the RNA-seq data from mouse forebrain with human diencephalon, and mouse hindbrain with human cerebellum.

ENCODE phase 3: rRNA-depleted Total RNA (>200bp), stranded PE101 Illumina HiSeq 2000

URL: <https://www.encodeproject.org/files/>

Species	Tissue	Library name	Replicate
Human	cameratypeeye	ENCFF841MML	1
		ENCFF604QYU	2
	cerebellum	ENCFF883NIZ	1
		ENCFF730CJE	2
	diencephalon	ENCFF164JEV	1
		ENCFF811MSS	2
	frontalcortex	ENCFF029BEL	1
		ENCFF542GSD	2
	heart	ENCFF575PML	1
		ENCFF413CTV	2
	liver	ENCFF741AOJ	1
		ENCFF444EKY	2
	lung	ENCFF816ZAP	1
		ENCFF202ETQ	2
	metanephros	ENCFF701CAC	1
		ENCFF841GMR	2
	occipital	ENCFF491VZY	1
		ENCFF992HMB	2
	parietallobe	ENCFF376UOL	1
		ENCFF090FOY	2
	skeletalmuscle	ENCFF997MIE	1
		ENCFF422EVZ	2
	skinofbody	ENCFF017ZWH	1
		ENCFF969GXB	2
	spinalcord	ENCFF976QSN	1
		ENCFF595LQV	2
	stomach	ENCFF559BDS	1
		ENCFF995BPY	2
	temporallobe	ENCFF196YLT	1
		ENCFF460PJA	2
	thyroidgland	ENCFF756NWQ	1
		ENCFF274JNT	2
	tongue	ENCFF019KCS	1
		ENCFF549UBP	2
	urinarybladder	ENCFF514QIL	1
		ENCFF719GEV	2
uterus	ENCFF535JQR	1	
	ENCFF979LYG	2	
Mouse	heart	ENCFF054EUK	1
		ENCFF228QVL	2
	liver	ENCFF162OCN	1
		ENCFF443YYY	2
	forebrain	ENCFF965MHF	1
		ENCFF203VYY	2
	hindbrain	ENCFF772VMM	1
		ENCFF172HHP	2

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E-MTAB-513 (Asmann et al.): Illumina Human Body Map 2.0, polyA-selected (50bp PE unstranded)  
URL: [ftp://ftp.ensembl.org/pub/data\\_files/homo\\_sapiens/GRCh38/rnaseq/](ftp://ftp.ensembl.org/pub/data_files/homo_sapiens/GRCh38/rnaseq/)

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Species	Tissue	Replicate
Human	adipose	1
	adrenal	1
	blood	1
	brain	1
	breast	1
	colon	1
	heart	1
	kidney	1
	liver	1
	lung	1
	lymph	1
	ovary	1
	prostate	1
	skeletal muscle	1
	testes	1
thyroid	1	

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SRX081 (Brawand et al.): polyA-selected (250-300bp unstranded), Illumina Genome Analyzer IIx  
URL: <ftp://ftp-trace.ncbi.nlm.nih.gov/sra/sra-instant/reads/ByExp/sra/SRX/SRX081/>

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Species	Tissue	Library name	Replicate
Human	testis	SRR306858	1
		SRR306857	2
	liver	SRR306856	1
		SRR306854	2
		SRR306855	3
	kidney	SRR306853	1
		SRR306852	2
		SRR306851	3
	heart	SRR306850	1
		SRR306848	2
		SRR306849	3
		SRR306847	4
	cerebellum	SRR306845	1
		SRR306846	2
		SRR306844	3
	brain	SRR306843	1
		SRR306842	2
		SRR306841	3
SRR306840		4	
SRR306839		5	
SRR306838		6	
Mouse	testis	SRR306776	1
		SRR306775	2
	liver	SRR306774	1
		SRR306773	2
		SRR306772	3
	kidney	SRR306771	1
		SRR306770	2
		SRR306769	3
	heart	SRR306768	1
		SRR306767	2
		SRR306766	3
	cerebellum	SRR306765	1
		SRR306764	2
		SRR306763	3
	brain	SRR306762	1
		SRR306758	2
		SRR306759	3
		SRR306760	4
SRR306761		5	
SRR306757		6	

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